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HP Docket No. 200315232-1

REMARKS

Applicants appreciate the Office's review of the present application. In response to the Office Action, the cited references have been reviewed, and the rejections and objections made to the claims by the Examiner have been considered. In order to render the claims more clear and definite, and to emphasize the patentable novelty thereof, claims 4, 8-15, 18-19, and 21-22 have been amended, and claims 1 and 5 have been canceled without prejudice. Support for any claim amendments and new claims is found in the specification, claims, and drawings as originally filed, and no new matter has been added. Accordingly, all claims presently on file in the subject application are in condition for immediate allowance, and such action is respectfully requested.

Rejections

Rejection Under 35USC §112 First Paragraph

Claims 2-3, 6-7, and 21-22 have been rejected under 35 USC §112, paragraph 1, as failing to comply with the written description requirement.

In response, claims 21 and 22 have been amended to recite an overlapping angular position rather than the same angular position, which is consistent with the suggestion provided by the Office.

In view of the foregoing, and since claims 2-3 and 6-7 were rejected under 35 USC §112, paragraph 1, only as dependent on one of claims 21 and 22, it is submitted that the rejections under 35 USC §112, paragraph 1, have been overcome and should be withdrawn.

Rejection Under 35USC §112 Second Paragraph

Claims 2-3, 6-7, and 21-22 have been rejected under 35 USC §112, paragraph 2, as being indefinite for failing to particularly point and distinctly claim the subject matter which the Applicant regards as the invention.

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In response, independent claims 21 and 22 have been amended to recite an overlapping angular position rather than the same angular position, which is consistent with the suggestion provided by the Office.

In view of the foregoing, it is submitted that the rejections under 35 USC §112, paragraph 2, of independent claims 21 and 22, and their dependent claims 2-3 and 6-7, have been overcome and should be withdrawn.

Rejection Under 35USC §103

Claims 2, 7, and 21-22 have been rejected under 35 USC §103(a), as being unpatentable over U.S. patent application publication 2002/0191517 by Honda ("Honda") in view of U.S. patent 6,145,368 to Klein ("Klein"). Applicants respectfully traverse the rejection and request reconsideration.

As to a rejection under §103(a), the U.S. Patent and Trademark Office ("USPTO") has the burden under §103 to establish a *prima facie* case of obviousness by showing some objective teaching in the prior art or generally available knowledge of one of ordinary skill in the art that would lead that individual to the claimed invention. See In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). The Manual of Patent Examining Procedure (MPEP) section 2143 discusses the requirements of a *prima facie* case for obviousness. That section provides as follows:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and reasonable expectation of success must be found in the prior art, and not based on applicant's disclosure.

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The rejection of independent claim 21, and its dependent claim 2, is respectfully traversed for at least the following reasons. Claim 21 recites:

"21. (Currently amended) An optical disk drive, comprising:
a spindle motor to turn an optical disk;
an OPU to apply an image to a coating within a label region of the optical disk; and
an encoder configured to track substantially identical disk speed features in a first annular ring at a first radial position on the optical disk in a region distinct from the label region so as to thereby obtain disk speed data, the disk drive further configured to track disk angular orientation features different from the disk speed features in a second annular ring at a second radial position on the optical disk so as to thereby obtain angular orientation data, the second annular ring abutting the first annular ring, the disk angular orientation features different from the disk speed features, and at least some of the disk angular orientation features having an overlapping angular position with at least some of the disk speed features." (emphasis added)

The Office has not established a *prima facie* case of obviousness at least because the applied references do not teach or suggest all of Applicant's claim limitations.

The limitation where the first annular ring of disk speed features tracked by the encoder and the second annular ring of disk angular orientation features that are tracked by the encoder abut each other is not taught or suggested by the Honda and Klein references. The Office acknowledges that the Honda reference does not teach these limitations, but states that the Klein reference does (Office Action, p.12). However, to whatever extent, if any, that the data channel 104 and the index channel 102 of Fig. 2 of the Klein reference may correspond, arguendo, to a first annual ring of disk speed features and a second annular ring of disk angular orientation features, these rings do not abut each other, as recited by the claim. Rather, the marks of data channel 104 and the index channel 102 are spaced apart from each other, as evident in Fig. 2. On a labelable optical disk, it is advantageous to abut the rings containing the disk speed features and the disk angular orientation features so as to maximize the contiguous area on the disk that is available for carrying the labeling.

Therefore, for the reasons discussed herein, the applied references do not teach or suggest all of Applicants' claim limitations, and thus the rejection is improper at least for this reason and should be withdrawn.

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Furthermore, the Office has not established a *prima facie* case of obviousness in that there is no articulated reason with some rational underpinning that would have prompted a person of ordinary skill in the relevant field to combine the prior art elements in the manner claimed. *In Re Kahn*, 441 F.3d, 977, 988 (CA Fed. 2006). A patent composed of several elements is not proved obvious merely by demonstrating that each element was, independently, known in the prior art. The Office states that the Honda and Klein references can be combined together “to measure the disk speed and angle directly from the disk itself, improving measurement accuracy” (Office Action, p.13). Applicant believes that this reason is merely a conclusory statement of generalized advantages and convenient assumptions that lacks the rational underpinning required for validly combining the references. The Honda reference, as pointed out by the Office (Office Action, p.12), discloses tracking the disk speed and the angular orientation (para. [0037]). In the Honda reference, a frequency generator 58 generates pulse signals based on rotation of the spindle motor 56, and a servo circuit 64 uses those signals to control speed and orientation of the disk. There is no teaching or suggestion in the Honda reference that this technique is lacking in accuracy. In addition, there is no teaching or suggestion in the Klein reference that provides a basis to conclude that the technique disclosed by the Klein reference would provide improved accuracy relative to what is achieved by the system of the Honda reference. Furthermore, the Klein reference is not directed to optical disks at all, much less to laser labeling of an optical disk. Instead, the Klein reference is directed to a rotatable disk of a rotary encoder used in, for example, a mouse or joystick (Abstract; Fig. 3). Thus the Klein reference does not teach or suggest measuring speed and orientation from an optical disk being labeled. Consequently, this rationale impermissibly uses the Applicants’ disclosure as a blueprint or in hindsight for the rejection. Because the Office has not provided an articulated reason with some rational underpinning to combine the prior art elements in the manner claimed, Applicants respectfully traverse the Office’s assertion that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the features recited in the claims of Applicants’ invention. Such could be possible only in hindsight and in light of Applicants’ teachings.

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Therefore, the rejection is improper at least for that reason and should be withdrawn.

Independent claim 22 (currently amended) recites limitations similar to those of claim 21, discussed above. Therefore, for similar reasons as explained heretofore with regard to claim 21, the features of the present invention are not taught or suggested by the cited references.

Applicants respectfully traverse the Office's assertion that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the features recited in the claims of Applicants' invention. Such could be possible only in hindsight and in light of Applicants' teachings. Therefore, the rejection of independent claim 22, and its dependent claim 7, is improper at least for that reason and should be withdrawn.

Claims 3 and 6 have been rejected under 35 USC §103 (a), as being unpatentable over the Honda reference in view of the Klein reference, and further in view of U.S. patent 5,107,107 to Osborne ("Osborne"). Applicants respectfully traverse the rejection and request reconsideration at least based on the dependence of these claims on independent claims 21 and 22 respectively, whose reasons for allowability over the Honda and Klein references have been discussed heretofore and against which the Osborne reference has not been cited. In addition, the stated motivation to combine the references is improper in that it is merely a conclusory statement of generalized advantages that impermissibly uses the Applicants' disclosure as a blueprint or in hindsight for the rejection. Therefore, the rejection is improper at least for these reasons and should be withdrawn.

Claims 4, 8-9, 11-17, and 19-20 have been rejected under 35 USC §103(a), as being unpatentable over the Honda reference in view of U.S. patent 4,929,822 to Nakamura et al. ("Nakamura"). Applicants respectfully traverse the rejection and request reconsideration.

The rejection of dependent claims 4, 8-9, and 11-12 is traversed because these claims have been amended herein to depend from either claim 21 or claim 22. Claims 21 and 22 have

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been rejected as being unpatentable over the Honda and Klein references. Because dependent claims 4, 8-9, and 11-12 are rejected under fewer than all the references used to reject their parent claim, the rejection is improper. In addition, as has been discussed heretofore, it is believed that claims 21 and 22, as amended, are allowable, and thus claims 4, 8-9, and 11-12 as currently amended are also allowable in dependent form. Therefore, the rejection is improper at least for those reasons and should be withdrawn.

The rejection of independent claim 13, and its dependent claims 14-17 and 19-20, is respectfully traversed for at least the following reasons. Claim 13 recites:

"13. (Currently amended) An optical disk drive, comprising:
means for controlling a rate at which a spindle motor spins an optical disk;
means for gathering disk speed data by tracking a plurality of substantially identical disk speed features defined on the optical disk as the optical disk is spun by the spindle motor, each of the disk speed features spaced apart substantially equally in a first annular ring at a first radial position on the optical disk and having an angular span that is substantially identical to an angular span of a gap between each two of the disk speed features;
means for tracking, with an OPU, disk angular orientation data defined by disk angular orientation features defined in a second annular ring at a second radial position on the optical disk, wherein the second annular ring abuts the first annular ring; and
means for labeling the optical disk according to the disk speed data and the disk angular orientation data." (emphasis added)

The Office has not established a *prima facie* case of obviousness at least because the applied references do not teach or suggest all of Applicant's claim limitations.

With regard to the disk angular orientation features, the Office admits that the Honda reference does not disclose tracking disk angular orientation features as recited in claim 13 (Office Action, p.12). The Office does not cite the Nakamura reference as teaching such features, and it is believed that the Nakamura reference does not teach such features. Thus the applied references do not teach or suggest all of Applicants' claim limitations.

As has been discussed heretofore with regard to the rejections of claims 21 and 22, the Office takes the position that the Klein reference discloses such features. However, Applicants disagree, for similar reasons as have explained heretofore with regard to the rejections of claims

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21 and 22, and thus it is believed that any prospective rejection of independent claim 13 under 35 USC §103(a) based on the Honda and Klein references would also be improper.

Applicants respectfully traverse the Office's assertion that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the features recited in the claims of Applicants' invention. Such could be possible only in hindsight and in light of Applicants' teachings. Therefore, the rejection is improper at least for that reason and should be withdrawn.

Dependent claim 11 is further patentably distinguishable over the cited references. Claim 11 recites:

"11. (Currently amended) A processor-readable medium as recited in claim 22, wherein the interpreting comprises instructions for:

distinguishing between a first and a second signal received from the encoder, wherein the first signal results when light is reflected off a mirrored surface and wherein the second signal results when light is reflected by a substantially circular molded pit that also deflects a portion of the light away from the sensor." (emphasis added)

The features of claim 11 are not taught or suggested by the cited references. With regard to the molded pits, the Office cites the Nakamura reference. However, the pits disclosed in the Nakamura reference (i.e. pits 20, Fig. 4A) are elliptical, not substantially circular. As can be understood with reference to Fig. 5 of the present application, an arrangement of circular molded pits can more easily form markings of various sizes and shapes for disk speed features and angular orientation features. With regard to the pit deflecting a portion of light away from the sensor, there is no teaching in the Nakamura reference that the pits function by deflecting light. Rather,

"the depth 23 (see FIG. 3) of each pit 20 is formed to be about 1/4 of the wavelength of the light beam to be emitted from the semiconductor laser so that interference of the light beam occurs at a line of demarcation between the pit 20 and the other portion. This causes variation of the reflection amount of light on the reflection film 18 whereby the four photosensitive elements Da to Dd respectively generate four electric signals A, B, C and D corresponding to the pit 20." (col. 6, lines 22-30; emphasis added)

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Thus the variation in the reflected amount of laser (i.e. coherent) light on reflection film 18 results from interference associated with judicious selection of pit depth, rather than by the pit deflecting incident light. In addition, molded pits that deflect a portion of light away from the sensor advantageously function with both coherent and incoherent light.

Accordingly, the Nakamura reference does not teach or suggest substantially circular molded pits that deflect a portion of light away from a sensor. Therefore, the rejection is improper and should be withdrawn at least for these additional reasons.

Dependent claim 19 recites similar limitations as claim 11, and thus the rejection of claim 19 is further traversed for similar reasons as have been explained heretofore for claim 11.

Claims 10 and 18 have been rejected under 35 USC §103(a), as being unpatentable over the Honda reference in view of the Nakamura reference, and further in view of U.S. patent 5,670,947 to Nagashima et al. ("Nagashima").

Claim 10 previously depended from independent claim 5, now canceled, which was rejected as unpatentable over the Honda and Nakamura references. Claim 10 has been amended herein to depend from independent claim 22. Claim 22 has been rejected under 35 USC §103(a), as being unpatentable over the Honda and Klein references. Because dependent claim 10 is rejected under fewer than all the references used to reject its parent claim, the rejection is improper. Furthermore, as has been discussed heretofore, it is believed that claim 22, as amended, is allowable, and thus claim 10 is also allowable in dependent form.

In addition, dependent claim 10 is further patentably distinguishable over the cited references. Claim 10 recites:

"10. (Currently amended) A processor-readable medium as recited in claim 22, wherein the interpreting comprises instructions for:

distinguishing between a first and a second signal received from the encoder, wherein the first signal results when light is reflected off a mirrored surface to a sensor and the second signal results when light is reflected by a saw tooth feature that also deflects a portion of the light away from the sensor." (emphasis added)

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The features of claim 10 are not taught or suggested by the cited references.

With regard to a saw tooth feature that both reflects light and also deflects a portion of the light away from a sensor, the Office admits that the Honda and Nakamura references do not disclose these limitations, but that the Nakamura reference discloses that "the second signal results from a molded pit" (Office Action, p.11). The Office further states that "Nagashima discloses that a sawtooth feature prevents directly reflected light from being incident on a light receiving device" (Office Action, p.11).

The Nagashima reference is not directed to optical disks, nor to rotating disks in a rotary encoder, but rather to a smoke detector. The reference discloses:

"Antireflection faces 23 and 24 each having a sawtooth cross section shape are formed on the lower face of the smoke detecting unit body 5 and on the inner face of the smoke detecting unit cover 11, respectively. If infrared rays from the smoke-detecting infrared LED 21 are incident on the antireflection faces 23 and 24, the antireflection faces 23 and 24 prevent the directly reflected light from being incident on the light receiving device 20. A space surrounded by the antireflection faces 23 and 24, the plurality of labyrinth members 13, the holders 16 and 17, etc. constitutes a smoke detecting chamber 25A. A smoke detecting space 25 is formed at the center of the smoke detecting chamber 25A." (col. 3, lines 29-41)

The antireflection faces 23-24 form non-reflective walls of a smoke detecting chamber 25A. There is no disclosure that any portions of the faces 23-24 are reflective, as would be needed in order to reflect some portion of the light towards the sensor, as required by claim 10. Thus, the applied references do not teach or suggest all of the limitations of claim 10, and the rejection is improper at least for this additional reason.

Furthermore, there is no articulated reason with some rational underpinning that would have prompted a person of ordinary skill in the relevant field to combine the prior art elements in the manner claimed. The Office states that "a saw-tooth feature and a pit are used in the same environment, for the same purpose, and achieve the same result" (Office Action, p.11). However, Applicants respectfully believe that this is not correct. First, the molded pit of the Nakamura reference does not achieve the same purpose as the molded saw tooth of the Nagashima reference. The molded saw tooth will "prevent the directly reflected light from being incident on the light

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receiving device 20" (Nagashima, col. 3, lines 35-37). However, the molded pit of the Osborne reference, as explained heretofore with regard to claim 11, does not deflect light, but rather the interference caused by the relationship of the pit depth to the laser wavelength varies the amount of reflected light (Nakamura, col. 6, lines 22-30). Second, the molded pit and the molded saw tooth are not used in the same environment. The molded pit of the Nakamura reference is used to form a disk-like plate 16 in an optical encoder 15 (col. 5, lines 34-43). However, the molded saw tooth of the Nagashima reference, as explained above, is used to form a wall of a smoke detector chamber, which is not at all like an optical encoder. As such, the reason articulated by the Office lacks a rational underpinning. Applicants respectfully traverse the Office's assertion that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the features recited in the claims of Applicants' invention. Such could be possible only in hindsight and in light of Applicants' teachings. Therefore, the rejection is improper at least for that additional reason.

Claim 18 depends from claim 13. Applicants respectfully traverse the rejection and request reconsideration at least based on the dependence of this claim on independent claim 13, whose reasons for allowability have been discussed heretofore. In addition, dependent claim 18 recites similar limitations as claim 10, and thus the rejection of claim 18 is additionally traversed for similar reasons as have been explained heretofore for claim 10. Therefore, the rejection is improper at least for these reasons and should be withdrawn.

Conclusion

Attorney for Applicants has reviewed each one of the cited references made of record and not relied upon, and believes that the claims presently on file in the subject application patentably distinguish thereover, either taken alone or in combination with one another.

Therefore, all claims presently on file in the subject application are in condition for

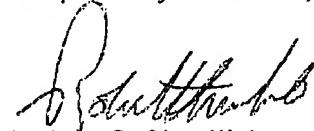
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immediate allowance, and such action is respectfully requested. If it is felt for any reason that direct communication with Applicant's attorney would serve to advance prosecution of this case to finality, the Examiner is invited to call the undersigned Robert C. Sismilich, Esq. at the below-listed telephone number.

**AUTHORIZATION TO PAY AND PETITION
FOR THE ACCEPTANCE OF ANY NECESSARY FEES**

If any charges or fees must be paid in connection with the foregoing communication (including but not limited to the payment of an extension fee or issue fees), or if any overpayment is to be refunded in connection with the above-identified application, any such charges or fees, or any such overpayment, may be respectively paid out of, or into, the Deposit Account No. 08-2025 of Hewlett-Packard Company. If any such payment also requires Petition or Extension Request, please construe this authorization to pay as the necessary Petition or Request which is required to accompany the payment.

Respectfully submitted,



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